

Applicant : Jan Antonis  
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Amendments to the Specification:

Please replace paragraph [007] with the following paragraph:

It would be desirable, therefore to provide an inspection system which does not require multiple cameras, relative movement between the object and the camera, or specialised optical equipment

Please replace paragraph [027] with the following paragraph:

Figure 6 presents a side sectional view of an object with a ~~bevelled~~beveled edge;

Please replace paragraph [030] with the following paragraph:

Figure 9 presents a side sectional view of an object with a ~~bevelled~~beveled edge and the camera focal point;

Please replace paragraph [031] with the following paragraph:

Figure 10 presents a side sectional view of another object with a ~~bevelled~~beveled edge and the camera focal point;

Please replace paragraph [046] with the following paragraph:

The data processing module 16 is also provided with, or pre-programmed with, data indicating the shape of the transverse cross-sectional profile of the object 24 in both the Z-Y plane and the Z-X plane. By way of example, the object 24 may have either a right-sided profile (Figures 1 and 5), a ~~bevelled~~beveled profile (Figures 6, 9 and 10) or an undercut profile (Figure 7). If the profile is ~~bevelled~~beveled or undercut, then the data processing module 16 is supplied with data indicating either the angle of the bevel or undercut (in the Z-Y or Z-X plane as appropriate and hereinafter referred to as the object edge angle (OEA)), or the width of the bevel or undercut (in the X or Y direction as appropriate). This information may be used in conjunction with the known thickness T, as is described in more detail below.

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Please replace paragraph [047] with the following paragraph:

The data processing module 16 may be arranged to receive some or all of the above-identified data (and other data as described hereinafter) as one or more input parameters (supplied, for example, by a user during use and/or retrievable from a local, or otherwise available, memory) and/or may be pre-programmed with some or all of the parameters or data (e.g. some or all of the data or parameters may be intrinsic to the processing algorithm(s) carried out by data processing module 16). For example, in the algorithm illustrated in Figure 2, it is inherent that the object 24 being inspected is assumed to be right sided and that the object 24 is perpendicularly disposed with respect to the camera's optical axis 13, while the value of T may be provided by user input in respect of each object or each batch of objects of the same thickness. In the algorithm of Figure 11, it is inherent that the object 124 being inspected has a ~~bevelled~~beveled edge profile while the value of T and, for example, the bevel angle may be provided as input parameters. In alternative embodiments (not illustrated) the algorithms of Figures 2 and/or 11 and/or 12 may be combined to accommodate objects 24, 124, 224 which may be right-sided, ~~bevelled~~beveled or undercut. In such embodiments, the data processing module 16 may receive a further input parameter, the value of which indicates whether the current object, or batch of objects, under inspection is right-sided, ~~bevelled~~beveled or undercut, and the composite algorithm (not illustrated) will execute accordingly.

Please replace paragraph [074] with the following paragraph:

Figures 6 and 7 show the edges of objects 124, 224 illustrating two basic types of edge profile that a typical object under inspection may have, namely a ~~bevelled~~beveled edge (Figure 6) or an undercut edge (Figure 7). In Figures 6 and 7, the objects 124, 224 are shown in transverse cross-section taken in the X-Z or Y-Z planes. It will be seen that the edge profiles are generally triangular in transverse cross-section. The edge profiles may occur on external, or outer, edges of the object 124, 224 and/or on internal, or inner, edges (e.g. at an aperture 26).

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Please replace paragraph [077] with the following paragraph:

In Figure 9, the object edge angle (OEA) is the angle of the bevel (conveniently with respect to the object plane or work surface 28) in the plane normal to OEP1 and the edge width (EW) is the width of the bevel in said plane. Assuming that the data processing module 16 is provided with the thickness T, then it is also provided with at least one of the object edge and the object edge width. As long as two of these parameters are known by the data processing module 16, then the third parameter can be calculated by the module 16.

Please replace paragraph [083] with the following paragraph:

The algorithm illustrated in Figure 11 can easily be adapted to handle undercut edge profiles (Figure 7). In such cases, the minimum edge position is the edge position which is of interest. For example, when considering a circular aperture 26 which is either ~~bevelled~~beveled or undercut, the maximum diameter of a notional cylinder (not shown) which can fit through the aperture 26 is the measurement of interest.

Please replace paragraph [088] with the following paragraph:

It will also be understood that the invention is not limited to the inspection of objects having right-sided, ~~bevelled~~beveled or undercut edges. The data processing apparatus may be arranged to process data in accordance with a definition of any edge profile.

Please replace paragraph [091] with the following paragraph:

The foregoing description of Figures 1 to 12 relates to the handling of objects having right-sided, ~~bevelled~~beveled or undercut edge profiles. The algorithms illustrated in Figures 2, 11 and 12 can readily be further adapted to handle other edge profiles where the vertical offset (i.e. the offset in the Z direction) can vary along the edge profile. An example of such an object 324 is shown in Figure 13 and a suitable algorithm is illustrated by the flowchart of Figure 14. The flowchart of Figure 14 is identical to those of Figures 2, 11 and 12, except in its determination of the vertical offset (instead of assuming this to be the thickness T) and

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horizontal offset,  $dW_{x/y}$ . Blocks 200 to 210 are identical to blocks 200 to 210 shown in Figures 2, 11 and 12.